



Innovating for ‘active ageing’ in a public–private innovation partnership: Creating doable problems and alignment



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ABSTRACT

By focusing on different constructions of the elderly and how these definitions are aligned within a Danish public–private innovation partnership called No Age, the article examines how various understandings of ‘the elderly’, ‘active ageing’ and ‘health’ clash and entangle in innovation work. The ambition of No Age is to create welfare technologies for elderly people. The authors were invited to contribute ethnographic insights to the partnership. We argue that the No Age’s innovation process creates doable problems by co-producing technological solutions, their users and the health issues the products are designed to address. Furthermore, we argue that the specific constellation and alignment of actors in such a partnership define how and what kinds of users are constituted, as the target groups and success criteria for the development of welfare technologies are shaped throughout the innovation process rather than decided at the beginning. This has implications for the role of ethnographers as providers of user-insights in health-related innovation projects.

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1. Introduction

Due to the challenges anticipated from an ageing population, the future of the Danish welfare state seems uncertain, according to policy-making and public debate.² New technologies and policies are meant to find alternatives to increased public expenditure or a lack of welfare services. The concept of ‘active ageing’ is one of the most prominent measures being implemented. It engages not only the oldest and most dependent elderly people in nursing homes: with the term’s focus on and directive towards participation in self-care and physical, social and mental activity, ‘active ageing’ is specifically targeted at those who are younger, more independent and self-motivated. In the active-ageing framework of the EU, the focus is on employment, health and participation [1]. In contrast to assistive

technologies [2], the technologies directed towards active ageing are not focused on disability or decline but are instead intended as enabling – they create specific types of active-ageing activities.

We discuss the alignment and negotiation in the development of active-ageing technologies in the Danish public–private innovation partnership called No Age. These technologies are tools that shape the lives of the elderly while they simultaneously promise an improved quality of life and a decrease in public expenditures. Furthermore, we examine how the prospective users and the problems of active ageing are negotiated within the collaborations that are part of welfare innovation work. We argue that, as the result of processes of alignment [3], such collaborations and negotiations produce specific versions of active ageing. With the concept of ‘alignment’ – which we take to be the arrangement and purification of a heterogeneous range of ideas into one shared idea – we want to emphasise that the PPIP was composed of different agenda and constructions of ‘late life’ and ‘the elderly’. Workshops and collaborations were designed to create a shared and aligned view – not just of the task at hand but also of what ‘the good life’ in late life should be – in order to create a homogeneous approach

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² Abbreviations used throughout the paper: Public–Private Innovation Partnership: PPIP, User-Driven Innovation: UDI.

from the heterogeneous ideas and agenda that were brought into the PPIP. The concept of negotiation we understand as part of the alignment process. The different ideas and agenda were aligned through negotiations.

At the beginning of the collaboration, the concept of 'the elderly' did not have a shared and unambiguous definition. We argue that the elderly were co-constructed as users of certain health technologies along with the technologies themselves [4]. As the health innovations took shape, so did the problems they attempted to assist. These problems were negotiated as specific target areas for intervention along the way, and they were neither pre-defined nor intended for any pre-existing need. As such, the user-involvement process did not serve to uncover and address prevalent needs for the elderly. Rather, it served to challenge preconceptions of the elderly and the goals of the partners, mediating the process of alignment [3] and defining and pursuing doable problems.

Ethnographic accounts can provide important insights into user practices and serve as an inspiration for innovation, but – with their stubborn emphasis on nuances – these accounts can also disturb the innovation process. The ethnographic accounts we present of different user practices serve to show how the user insights came to pose different kinds of challenges to the innovation process, and how this influenced the directions taken and the negotiations and reformulations of conceptions of users and active ageing that followed, in order to construct these as doable problems. As ethnologists, our ascribed role was to advocate for the users' perspective and ensure the technologies' compatibility with everyday practices. However, this form of advocacy is problematic, as insights are translated into operationalisable unities and are changed in the process. We cannot advocate for the users' perspective, but rather translate and transform ethnography into insights that can become part of the innovation process. Furthermore, ethnographic accounts are only useful in such an innovation process if they are aligned.

We explore how the specific directions and goals of the PPIP were defined and how, through these processes of negotiation and alignment [3,5], different actors came together to shape the outcome. This process is about aligning actors – finding points of alliance and making connections between different practices, preferences and criteria. This alignment work can be done by negotiating the construction of the users, the goals of the PPIP and the envisioned scripts of specific technologies [6] in order to make the final product and its function relevant and valuable for all participants [3]. This occurred in the interactions between possible technological solutions, user input, professional competences and business opportunities. This meant that, in the innovation processes, some aspects of health and users' health practices were downplayed while others were strategically or pragmatically emphasised.

In our description and conceptualisation of the innovation process, we are inspired by STS analyses of UDI and knowledge production [3,4,6–11]. We wish to contribute to this literature by showing how UDI is a process of alignment and negotiation of doable problems. This insight draws on work on enactment in STS, particularly the work of Jeanette Pols on telecare technology, which "*does not solve problems that are already there, but helps to enact particular problems as the ones needing to be attended to (...) it is the nature of the problem itself that changes with the particular practice in which a device is embedded. (...)*

Each device thus helps enact a different set of problems" [3:186–7]. This process is a co-production of technology as well as its users and the specific areas of their health practice that are cultivated by the strategic choices being made during the innovation process. Thus, we argue that the practices of the elderly become a problem during the innovation projects. The result was concepts or prototypes serving to reinforce certain versions and problems of ageing as the problems that could be attended to, while other issues were left behind.

2. Project design and fieldwork

No Age included officials from Danish municipalities, research institutions and humanitarian organisations as well as entrepreneurs and private companies representing a broad range of professions, such as engineers, designers, health practitioners and ethnologists. The entrepreneurs and private companies consisted of four IT consultancies, three telecare manufacturers, two hearing aid manufacturers, a fitness centre, a design company, a medical device business incubator, an insurance company and a robotics manufacturer. The partners had different interests, resources and ideas about the elderly and the meaning of concepts like 'active ageing', 'the good (late) life' and 'technology'. Accordingly, the issues, challenges and possibilities of the innovation collaboration were often diffuse, unstable and constantly negotiated.

No Age exemplifies a confluence of interests. The PPIP had three sub-projects; the authors participated in two of them, providing ethnographic and gerontological input and ensuring user involvement. As ethnologists, our contribution encompassed conducting ethnographic fieldwork, gathering qualitative data about everyday life and other indirect user perspectives, as well as promoting more direct user involvement in the form of workshops and user tests. Our main role was to ensure that the innovation process considered the perspectives of the elderly as end users. We participated in the innovation project from the beginning to the end, contributing to the following two sub-projects:

The Meeting Place aimed to develop technologies or concepts that would increase the social, mental and physical fitness of elderly people. The main focus was on technologies to facilitate encounters between the elderly themselves, but also between the elderly and other generations. The hope was that encounters and games, while valuable in and of themselves, could also lead elderly people to engage in more physically active lifestyles.

Preventive Self-Monitoring aimed to develop technologies and/or concepts to monitor the health parameters of the elderly at home. By generating insights into the elderly's health conditions and improving their ability to act upon this information, the intention was to support the elderly in being more independent by making them feel safe at home, which would allow them to remain self-reliant for longer.

The PPIP lasted from the autumn of 2010 until the spring of 2012. During these 18 months, the authors conducted ethnographic fieldwork and participated in and/or arranged 12 workshops connected to the two sub-projects. The ethnographic

fieldwork consisted of 20 semi-structured interviews, hundreds of hours of participant observations at activity centres and 11 days of general observations at physiotherapy clinics.

As part of The Meeting Place, participant observations were conducted at two activity centres in the greater Copenhagen area – this included observing and participating in physical activities like Pilates or ping-pong, mental and practical activities like computer courses and metal-smith workshops, and social activities like billiards, dice games and bingo. It was during these activities that the researcher met the 11 people who were later interviewed in their homes. The interviewees ranged in age from 58 to 92 years. The interviews lasted between 1 and 4 h each and covered themes such as activities, the role of the activity centre, the rhythms and routines of everyday life, health and disease, the use of technology and life histories.

In Preventive Self-Monitoring, we conducted 11 days of observations – first, during treatment processes at a rehabilitation centre in northern Zealand that specialises in back pain; and second, during prototype testing. We recruited interviewees via treatment processes: they were selected based on the severity of their back pain and the level of mobility problems caused by their conditions; a variety in the patients' amount of pain were needed to target the most and least severe cases. The interviewees were between 40 and 76 years of age. Interviews were conducted in the period after we had completed our observations, lasted between 1 and 2 h each and, in most cases, took place in the interviewees' homes, although some interviews were conducted at the treatment centre.

As we describe in Section 4, the transformation from user insight to innovation possibility proved difficult in this partnership constellation; often, our insights were used as sources of inspiration rather than as engines for innovation. This downgrading of ethnographic insights in the innovation process has become one of the driving forces for this article. Why is it so hard to transform ethnographic accounts into operationalisable entities in an innovation process? What is the role of the user and of ethnography in PPIPs? As we began to ponder these questions, we became researchers of the PPIP and of our own practice therein. We both participated in the PPIP and collected data about it. This of course creates a bias, which we have attempted to be conscious of throughout the process. Thus, we do not refuse the bias but rather embrace it as a condition for this type of research.

3. The Danish welfare state

One of the ambitions of the PPIP was to mobilise and strengthen the elderly's own resources. This can be seen as a part of a general tendency to improve elderly people's independence, self-reliance and quality of life, but also to reduce costs within the healthcare sector and to create business opportunities for private companies. This corresponds to the current trend to promote active ageing within health politics and care regimes, which has been critically described by several social gerontologists [12–14].

In Denmark, elder care is mainly organised, financed and provided within the public realm as part of the welfare state. Recently, one of the state's main objectives has been to provide a stronger user orientation in the provision of care. Reforms have been initiated and motivated by an expanding ageing population, which threatens to lead to future increases in public expenditures. The engagement and empowerment of elderly users

mainly unfold in and through state-funded and/or private innovation work. This corresponds to a growing emphasis on user-driven innovation as a Danish competence and export commodity and, due to this focus on UDI, the concept of 'the user' is becoming increasingly important in Denmark [15]. The combination of these factors has led to a focus on interdisciplinary collaborations, wherein public and private actors are united in projects to create innovative welfare technologies. The expectation on the policy level is that this will drive down public costs, improve equity and increase opportunities for user choice and responsiveness.

At the same time, the term 'active ageing' has become commonplace in policy discourse. This change represents a move away from a model of old age based on decline and dependency to one that focuses on capabilities, recognising that society as a whole can benefit from older people's experience, expertise and skills. While this may seem utterly positive, there are now higher expectations for the citizens of European welfare states to strive for health and longevity; this can also be perceived as a form of control, in which the elderly must pay attention to their own bodies in a responsible and competent manner in order to stay fit (and thereby cost-free) and industrious for longer than before.

In a neo-liberal "logic of choice" [16], being elderly means being a health consumer. The elderly are constructed as autonomous individuals who are required to take responsibility for themselves and maximise the quality of life by accessing, producing, processing and sharing health information, making informed health choices and self-managing treatments. This type of health promotion for the elderly assesses old bodies according to mid-life norms of functionality [14,17] and delegates responsibility for the quality of late life to the senior citizens themselves.

The studies we have conducted amongst the elderly as users of new 'active ageing technologies' point to the intrinsic conflicts between intentions to mobilise elderly to embrace new means to optimise their health and ageing, and the needs and wants of the elderly themselves. This serves to problematise the fusion of business interest, fiscally motivated health initiatives and user advocacy in a difficult balancing act that attempts to serve the interests of all. The question is whether user involvement in this case can represent user needs or becomes a mere token involvement [18] to provide innovation programmes with public legitimacy. We tell the stories of some of the users consulted in the innovation process and how these accounts of ageing practices conflicted with the ambitions of the project.

4.1. Ethnographic accounts I – technologies as disruptions or facilitators?

Who are these elderly people we intend to innovate for, and how do they use technology? As ethnologists, one of our contributions was to conduct ethnographic fieldwork and subsequently provide insights that could enrich and guide the innovation process. The underlying logic was that if No Age is going to develop products that the elderly will actually use, the partners have to understand the practices of this population group. We were faced with the problem of how to consider 'the elderly' as one group. We want to stress that 'the elderly' are a group only in demographics and statistics.

Otherwise, and especially in terms of their everyday practices, they differ just as much as – if not more than – any other population group categorised by chronological age.

The following fieldwork excerpts serve to illustrate that some elderly people oppose the expectation that they should be interested in using technology for health purposes. While this was not the case with all of our informants, the number of those who resisted making technology part of their daily health practices was sufficient to create a problem for the Preventive Self-Monitoring sub-project, whose members were forced to ask: 'If we develop health technologies that are not appropriate for the way these elderly people practice their health, how can we expect them to succeed?'

Frank is 76 years of age. He used to take long walks every day and travel frequently. His back pain now prohibits him from enjoying those activities, and all he wants is to recover enough to resume his favourite pastimes. He does not pay attention to his health or physical condition, and he chooses not to worry about it. He does not consider himself ill; as he says, he just suffers from "*a minor physical obstacle, that's all*". He does not want to monitor his health, as he does not see the point in using what he considers to be "silly gadgets". He prefers to not engage with forms of technology that do not directly serve his purposes.

Carsten is 70 years of age and a very physically active man. After his retirement, he decided to lose weight and began filling his daily schedule with physical activities. While his level of activity is partly due to health-related concerns like weight loss and disease prevention, Carsten is not willing to focus on the "frailties" of his body, as he says. Thus, when the researcher asked him at the beginning of the interview whether he has any medical conditions or uses any technologies related to a health condition, he responded no. But an hour into the interview, he suddenly remembered his high blood pressure and the fact that he has a blood pressure monitor. He asked the researcher if this would be an example of a condition and a medical technology. It turns out that he usually has trouble finding the monitor, as he rarely uses it. He explained that he sees it as an unpleasant reminder of frailty and disease; so it gets hidden away in a closet, and he prefers not to know his blood pressure numbers.

As these examples show, some elderly people do not want to use technologies that make them *more* aware of their health conditions. For them, it seems senseless to take action against a potential danger. Many elderly people who do not have physical dysfunction see no need to actively fight possible risk factors, and those who have experienced some physical difficulties are dealing with and managing them – and they do not want to worry about *potential* future damage. In order to maintain normalcy and the routines of everyday life as much as possible, Carsten and Frank have found other solutions to their physical challenges. Thus, if the PPIP wanted to target elderly people like them, the innovations needed to include benefits from self-monitoring – benefits related to maintaining normalcy rather than emphasising potential deterioration, risk or disease.

With regard to its ambition to promote social encounters via technology, the sub-project The Meeting Place encountered similar problems, specifically in terms of how some of the elderly informants use communication technology. For example, if they perceive technology as a disruption to social

relations, how can new technologies be incorporated into their social encounters?

Andrea is 75 years of age and lost her husband eight years ago. Socially, she lives a rather withdrawn life. One of her sons lives in Australia, and she spends a lot of money to talk with him on the phone. He has suggested that they use Skype instead, but she dreads the thought of being projected on his screen "Down Under". For Andrea, technology feels alien and artificial, and she thinks it ruins the purity of social relations. She is glad that she retired just before computers made their way into her workplace, and she bemoans the societal development of displayed and screened togetherness. If someone sends her a text message on her mobile phone, she refuses to answer or calls back instead. If she needs information about her son's flight schedule or something similarly impersonal, she will write him an e-mail; but if she wants to know how he is doing, she calls him in Australia.

Thus, the question becomes how The Meeting Place can design technologies that will create and facilitate new social encounters for elderly people like Andrea. If technology is believed to ruin social relations, how can it possibly enhance them? Are the technologies developed in The Meeting Place seeking to fix a problem on behalf of their prospective users or on behalf of the partners? If it is the latter, how can users be convinced to actually use other forms of technology? In Section 3.2 we show what happens to these ethnographically produced descriptions of the elderly users when they are inserted into the innovation process in No Age.

4.2. *Ethnographic accounts II – what do the elderly become in the PPIP?*

During our work with No Age, ethnographic accounts – such as those outlined in Section 3.1 – were intended to nuance categorical constructions of the user. Furthermore, as mediated accounts interpreted and analysed by us ethnographers were used to provide the process with practice-embedded, empirically dense material, they also played a part in the alignment work. When we introduced ethnographic descriptions of the user in the workshops in the sub-projects, it became evident that the kind of accounts we were providing included insights that were different from what some of the partners expected. Some found the ethnographic accounts hard to translate into business opportunities and would sometimes perceive the nuances as non-constructive barriers. Some preferred to divide the various conceptualisations of the elderly into segments, which prompted new negotiations about how to align and translate these ideas.

As seen in the excerpts above, some elderly people resisted the labels that were presented to them. Instead, they engaged in alternative conceptualisations of themselves. In order to align these users in the innovation work, they had to be addressed in a way that made sense to them. In the convergence between the prospective users' and the project's aspirations, both were shaped and reshaped. The users did not pre-exist as a group before the innovation project. Through user studies, they were invited to indirectly engage in a negotiation about which issues to address and in which way. They contributed to producing themselves as a possible target group. But the PPIP project tried to minimise this heterogeneity and align it with the specific issues that were relevant to the innovation work.

Danish social scientist Birgit Jæger [19] describes how different sectors have different understandings of the user; whether they are considered consumers, citizens or clients suggests very different platforms for innovation. Similarly, in the PPIP, the partners formulated different versions of the elderly as users, consumers, citizens or patients. When they came into the PPIP, the partners all brought with them different versions of the elderly and different agenda for the innovation process.

Fig. 1 shows that the partnership at No Age was primarily composed of three different groups. These partners had different ambitions regarding the outcome of the partnership. While this was part of the condition for No Age, it also caused problems of alignment that proved difficult to overcome as the deadline of the partnership approached and the owners of the prototypes tried to make them ready for the market. For the public partners (e.g., the municipalities and health institutions), a main driver in initiating health-innovation projects like No Age is the need to reduce costs without compromising quality – and preferably, to enhance quality – in an attempt to improve welfare, democracy and legitimacy [19]. Another related driver is maintaining the elderly's independence as long as possible; this is based on the idea of 'ageing in place' [e.g., 20].

The private companies brought other conceptualisations of the user into the project. From their perspective, the elderly were primarily rational consumers; and, as consumers, they were expected to creatively utilise welfare technologies. For some of the companies, the products being designed had to be produced with as little effort as possible and based on already existing skills, market positions and technologies. In this way, they hoped to maximise their return on investment by producing maximum effect and profit with as few resources as possible.

The academic institutions were represented by a variety of disciplines – from ethnologists to engineers – with different agenda and conceptualisations of the user as well as different ideas about the innovation process. As part of The Meeting Place, engineers from two technological universities brought new prototypes into the partnership and viewed the partnership as a way to user-test these devices. While the social scientists considered the user knowledge generated within the

PPIP to be the first building block of innovation, the engineers already had their prototypes planned and viewed user knowledge as merely a source of information to make adjustments. This created a clash between user-driven and technology-driven innovation that proved hard to overcome.

In the early stages of the collaboration in particular, prospective users were indiscriminately referred to as patients, elderly people, citizens and users. It was a considerable and time-consuming task to align the partners' constructions of the target group. One moment, the elderly were described as a risk group, facing old age and a deterioration in health, and as people who would be hard to reach because of their technology-scepticism and conservative lifestyles. But the next moment, the elderly were described as ready to embrace change and new technologies because this generation of elderly people is more agile, resourceful and healthier than ever. The same partners would often within minutes state contradictory opinions about the users such as, "Elderly people are scared of new technology." followed by "I think this group of elderly people use Skype and Facebook a lot" (quotes from workshops in The Meeting Place). In almost the same breath, users were denoted as resourceful citizens, demanding consumers, frail patients and conservative old people. They were positioned as a financial burden to the state and a challenge to be overcome, while also possessing innovative skills, expertise and experience that could benefit Danish production and competitiveness.

These diverging versions of the elderly may very well reflect the fact that they do inhabit a multiplicity of changing positions, identities and characteristics according to time, place and context. The ethnographic accounts served to support this multiplicity and situational conditionality. But multiplicity and nuances proved hard to tackle in the innovation process and were gradually de-emphasised as the partners needed solid ground to work from.

The goal of The Meeting Place was to create innovative solutions to facilitate social encounters and promote physical, social and mental fitness. Due to the contrasting constructions of the user, idea generation often targeted the 'technology-embracing elderly' to prompt ideas about new smart-phone applications and location-based technology. But in the next moment, the construction of the user as 'technology-scared elderly' abruptly interfered with these ideas. Elderly people like Andrea and Frank became obstacles to creativity instead of building blocks in the alignment process. When technology ruins social relations or must serve a concrete and tangible purpose, new technologies that aim to facilitate social encounters and which serve no direct, practical purpose will have low probabilities of success. Accounts like that of Andrea would interfere in the innovation process instead of inspiring it.

In Preventive Self-Monitoring, the partners kept framing the project as one that was meant to address challenges related to overcoming certain risk factors of old age, such as loneliness, frailty and decline. At the same time, this image of the user was closely connected to a narrative of hope and the potential for change through intervention. In workshops about how to handle the elderly's risk factors, the partners often discussed a strategy in which the concepts should disseminate risk. In this line of thought, the prospective users would then recognise their risky state and act on it, thus counteracting the risk. But user insights from Frank and



Fig. 1. The framework of the No Age partnership was based on three different kinds of partners.

Carsten, amongst others, interfered with this strategy because these informants seemed to be aware of their health conditions but chose to remain in denial about the possible effects that their lifestyles had on their conditions. This information thus emphasised the need to transform the innovation work's focus into a more complex matter than merely risk dissemination.

The accounts of Frank and Carsten show that discourses of risk can fall short as motivators for health action or behavioural change. Frank's story could be seen as a way to understand that exercise is not always motivated by a desire for optimal health or longevity, and that it could be a means to another end – e.g., pursuing interests, knowledge or togetherness. The health technologies and health-oriented exercise were not the incentives that the partners had assumed they would be. Thus, because the results of the ethnographic work did not match pre-existing conceptualisations about prospective users' everyday practices, our insights were a disturbance to the technology- and health-centred focus that dominated the partners' initial project aim. With the introduction of accounts about some elderly people's resistance to certain 'newfangled' technologies to monitor physical health, expectations about the project's means and goals were aligned in new ways. The questions deriving from the ethnographic accounts showed that the PPIP had troubles defining which problem and prospective user to address.

In Preventive Self-Monitoring, the prospective user was associated with prevention and rehabilitation due to conditions such as back pain and hearing loss. These focus areas were chosen because they reflected the partners' areas of expertise. The partners negotiated and navigated between challenges related to the user. But significant treatment issues were often left unaddressed if the partners did not experience the same problems. For example, the physiotherapists from a local hospital presented an issue they had regarding their staff's trouble in communicating with immigrant patients. However, this problem was never addressed in the PPIP; instead, the health and treatment issues focused on the Danish-speaking majority, as all of the partners could relate to them, and this group was considered to be the easiest and most rewarding to target. The less doable problems were quickly discarded.

Depending on how the elderly were constructed as users, suggestions related to the possibilities, challenges and goals of the PPIP likewise changed. In constructions of the user as described above, we believe there is both a project-specific and a general difficulty. The project-specific difficulty was expressed in the tendency to create a definition of the elderly, based on their use (or lack of use) of technology. The authors participated in this technology-centred construction of the user, as the elderly were described through their use of technology. The general difficulty is the idea in the first place that the elderly form a group based on some kind of common practice. The idea of chronological age as a predictor for behaviour has been chastised in social gerontology through the latter half of the 20th century [21]. The ethnographic excerpts also showed that the elderly do not see themselves as a group.

Our ethnographic aim was to provide up-close studies of and insights into the everyday lives of elderly people, in order to nuance certain constructions of ageing that, at the same time, forced technologies into their everyday lives. That leads to the question: what happened to the users' accounts in the

development of the prototypes? Is there a direct line from Frank or Andrea to the prototypes, or is the user-focus simply a token one? In Section 3.3, we show how this connection does exist, albeit in very indirect and roundabout ways.

4.3. *Ethnographic accounts III – are the ethnographic accounts from the elderly present in the products?*

The partners needed to collaborate and negotiate in terms of where to direct their efforts to accommodate as many interests as possible. This continually created new and smaller constellations amongst the partners. What worked within the smaller constellations became determining factors for which prototypes were further developed in the sub-projects.

Through negotiations and by adapting their perspectives, these different actors found points of alignment. This meant that some constructions of the elderly were silenced or downplayed while others were reinforced as consensus about the direction of the work was reached and the most productive areas of interest were defined. Certain constructions of the elderly were given priority and stood out. Sometimes the partners benefitted from a nuanced understanding of the elderly's heterogeneous practices, and sometimes they needed more simplified constructions of the elderly. In this way, the PPIP shifted back and forth between different ideas of the elderly's practice and specific "doable problems" [11].

Gradually this oscillation lessened as user images and subsequently the prototypes in development crystallised. The groups developed doable problems about the elderly users, their needs and the appropriate technologies for achieving a good late life.

A specific ambition of the Preventive Self-Monitoring project was to prevent or minimise absenteeism in the workplace. Because the general ambition of the project was not only to improve health but also to enhance cost-efficiency and business interest, one of the primary motivating forces was the different types of financial benefits to be gained. From this starting point, three groups took their work in different directions. As previously mentioned, one group decided to improve the rehabilitation of back pain patients through exercise. They focused on improving the quality and efficacy of a patient's home exercises, and allowing him or her to combine subjective training reports with technology-assisted training and exercise registration.

The second group focused on the early detection of hearing loss symptoms, in order to reduce both the personal and professional costs related to reduced work capacity; they also knew that Danish manufacturers (some of whom participated in this partnership) have a great deal of expertise and market value in this area. The third group focused on the early identification of stress, due to the estimated huge personal and public costs related to this condition, and because it was a doable problem in the partnership.

The way in which the projects were shaped and reshaped reflected the partners' specific interests and resources, which resulted in target groups with very specific types of impairment. This provided potential value to the municipalities, the healthcare sector and employers in the form of cost reductions, but also to manufacturers in the form of sales potential. These were the points of alignment that could serve all the partners while also potentially benefitting the designated elderly users.

In The Meeting Place, each of the different prototypes had a specific target group. One prototype focused on the rehabilitation of people who had suffered from a stroke and/or were prone to falls. Another prototype targeted active elderly people who participated in Nordic walking, and another targeted community-seeking yoga enthusiasts. Finally, one concept targeted all physically active elderly people through an online community for the elderly, which was connected to private fitness centres specialising in the elderly. As with the initially very different constructions of the elderly as users, different perspectives on potentialities and areas of concern crystallised into specific formulations of the most prevalent issues related to ageing and health. Each project group formulated goals and ambitions that reflected their construction of active ageing and elderly users. Some versions required minimal technical skills, others sophisticated skills; some focused on prevention, others on rehabilitation; and some concentrated on the aspects of healthy ageing related to social, mental or physical activity.

All of the different sub-projects took their point of departure from the development of specific technological solutions that could address certain user groups and their main concerns. Thus, the form of 'active ageing' to be achieved was *active ageing through the mediation or intervention of technology* – even though some prospective users were resistant to using technology in their social and/or physical activities.

The design of the PPIP forced the elderly users to relate to technology as a possible solution to potential problems, even though some thought that technology poisons social relations or forces an unwanted stance towards disease. In this way the PPIP addressed a specific kind of good late life that would benefit the interests of the partners. As ethnologists, we took part in this through our ethnography when we asked questions that proposed a role for technology in a practice where technology was absent. When Carsten showed his blood pressure monitor, he did not only showed us a material example of how he does not want to relate to his condition; but he also showed that he, in that instance, realized the kind of late life we were trying to cater for through the innovations in the PPIP. Much in the same way as the interview enforces reflections and articulations about a specific topic onto an individual [22], the fieldwork design in the PPIP forced health practices and needs of technology onto a population group that did not regard their everyday doings as health practices or see themselves as being in need of technological solutions.

We found ourselves in a double role in two aspects. First we were called upon to advocate the user perspective, but also needed to consider if the insights could create doable problems. The different partners needed problems that they could solve through their technologies; and if we served them problems of a different kind, the partners could not act on the information. Thus, we were trapped between user advocacy and the doable problems of the partnership, and we tried to solve this tension through alignment and negotiation. We participated in the innovation work through our mediation by ethnographic description and by our attempts to establish a closer connection between the elderly's practices and the innovations that were meant to assist them. Thus, through our interpretations and analyses of everyday life, we tried to advocate for elderly users' integrity and negotiate on their

behalf, which simultaneously meant that we had to abandon the task of advocacy. We needed to transform the ethnographic situations in order to make them doable in the partnership, and in this transformation we gave up advocacy.

The second double role we found ourselves in was that of participant and observer. We participated in the PPIP but also began to study the PPIP as practice during the process. As we realized that the technologies we could innovate were not solely driven by the elderly users' practice but also by the technologies that the partners had in their pipelines, we became interested in the negotiation between pipeline and user. The participatory setting invites negotiation and creates a channel between developer and user, but it is unclear whether the developer is driven by the user-practice, or if this is merely an opportunity to engage with potential users. As we have tried to show, we were part of the alignment and negotiation that we have described. This of course creates a bias, which we have tried to describe in a transparent way. We do not see our role in the PPIP as less enmeshed in interests than any of the other partners; only our interests were different, as they evolved around knowledge about the practice of the user and that of the PPIP.

The PPIP is an example of how difficult 'the user' in user-driven innovation can be. Users tend to be heterogeneous. Users often do not see themselves as users. Users' practice is often non-transferable into services or technologies. Users tend to use things in surprising ways. This has some implications for UDI. Neglecting the users' practice and believing in the developers' own understanding of the users is one way to go [23]. Looking at other end-users than the consumers (e.g., care personnel) or even getting rid of the concept of the user are other possible solutions. However, we find that a consideration of the duration of technology development could hinder some of the problems we encountered in the process. The PPIP lasted 18 months; but as most innovative technologies are long underway, the developers had started their prototype development already when the PPIP was initiated. The user practice could then only inspire the developers in the last phases of the development to make minor adjustments. Thus, we find that one route to take for PPIPs could be to engage in longer partnerships where designers, engineers, entrepreneurs, public institutions and ethnographers could start the innovation process together, instead of adding a bit of user perspective and a twist of ethnography along the way.

5. Conclusions

The innovation projects we have described are part of the Danish governmental ambition to unite public, private and user interests in crosscutting collaborations, which are based on the ideals of Mode 2 knowledge production [11,15]. The goal is to create benefits for each of the participating parties while creating more empowered, active and health-conscious citizens of all ages. The Danish welfare state plays a significant role in shaping a 'new old age' by calling upon the elderly to participate in the welfare project and involving them in the development of new health concepts.

Through our description of the PPIP, we have shown how expectations for active ageing entangle with elderly people's practices and ideals with regard to ageing, health, technology and the good late life. The partners in the PPIP produced and

mobilised multiple constructions of the elderly at different times during the PPIP. The elderly users resisted and challenged the project partners' conceptualisations and constructions of ageing. We found that the elderly cannot be conceptualised or addressed as a homogenous group based solely on their chronological age or the anticipation of physical decline.

The elderly people in our ethnographic study keep issues of illness or age-related impairment at a distance until they need to be dealt with. This was not a surprise for us as ethnographers, but it presented a challenge for the innovation teams. Their conceptualisations had to be adapted and negotiated accordingly. In order to engage the elderly in the innovation work and to produce doable health initiatives and technologies, the project participants needed to negotiate and find common ground. By aligning and negotiating ideas of users' practices, different constellations of partners created different versions of health, technology and ageing. Thus, the PPIP did not address specific pre-existing health conditions or risk groups; rather, the PPIP had to negotiate what these health conditions and risk groups were, align them and form them in such a way that they could be dealt with through technology. In this way the PPIP created doable problems.

As such, we have described how health technologies, health issues and users become co-constructed in the development process [4]. Through our analysis of health innovations and the stabilisation of health-innovation collaborations, we agree with Jeanette Pols: "*The devices and their users solve particular problems by cooperating with each other, but in enacting these solutions together, they also shape what these problems are* (our emphasis)" [3: 173]. We found that the relation to the actual practices of the elderly would often be given less priority than the consideration of promising technologies or areas of expertise and business interest of the partners. This was the outcome of pragmatic alignment work. Thus, what active ageing becomes is dependent on the actors who participate in defining and realising their constructions of active ageing as a doable problem. This type of PPIP balances between a technology-driven and user-driven innovation process. We do not suggest that the technological possibilities should not be taken into account, but stress that the practices of the users should be more than a source of inspiration; to be user-driven, the PPIP needs to adapt to the everyday life of those it wishes to engage.

It is difficult to see a direct connection between the user insights that developed out of the ethnographic accounts of the elderly and the final prototypes. However, we argue that it does exist, albeit in indirect and subtle ways, and that the user insights were an important driver for the alignment work. However, the doable problems resulting from this might not have been the most pressing concerns for the elderly themselves, or the ones that related the most to their actual health practices and understandings of age. These doable problems were a necessary compromise in order to make the innovation project work and align the different interests. In these cases, the alignment work necessary to unite actors meant forming versions of ageing and health that were resolvable with the technological possibilities and competences of the present participants. This might be a necessary condition for such innovation constellations; however, there is a need to discuss whether this reflects the best solutions for the elderly.

The active-ageing concept has already been criticised for imposing certain norms and ideals about normal ageing. We are now only beginning to see what happens when ideas of active ageing are coupled with welfare innovation and Mode 2 ambitions. Are such partnerships the best way of dealing with the challenges posed by the demographic change and the ambition to develop new marketable projects and expertise? We need to study the implications of ethnographic involvement in such health innovation processes further in order to know more about the potentials, pitfalls and possible positions. Otherwise, the ethnographic contribution becomes a checkmark in the list of UDI tools, without bringing any value to the innovation process. We find that user-focused health and welfare innovation projects balance between realising the ideals for democratic engagement and responsiveness towards user needs and practices, and merely enforcing a veiled way of pursuing different interests than those espoused by the users.

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